

WHAT IS CLAIMED IS:

1. An isolated nucleic acid molecule comprising a polynucleotide having a nucleotide sequence at least 65% identical to a reference sequence selected from the group consisting of:

(a) the nucleotide sequence set forth in SEQ ID NO:1;

(b) a nucleotide sequence encoding the *tag7* polypeptide having the complete amino acid sequence set forth in SEQ ID NO:2;

(c) a nucleotide sequence encoding the mature *tag7* polypeptide having the amino acid sequence at positions 20 to 182 in SEQ ID NO:2;

(d) the nucleotide sequence of a *tag7*-encoding polynucleotide which hybridizes under stringent hybridization conditions to a polynucleotide having the nucleotide sequence as set forth in SEQ ID NO:1;

(e) the nucleotide sequence of a *tag7*-encoding polynucleotide which hybridizes under defined hybridization conditions to a polynucleotide having the nucleotide sequence as set forth in SEQ ID NO:1; and

(f) a nucleotide sequence complementary to any one of the nucleotide sequences in (a), (b), (c), (d) or (e),
or a fragment thereof

2. The nucleic acid molecule of claim 1 wherein said polynucleotide has a nucleotide sequence at least 70%, at least 75%, at least 80%, at least 85%, at least 90%, at least 95% or at least 99% identical to said reference sequence.

3. The nucleic acid molecule of claim 1 wherein said polynucleotide has the nucleotide sequence set forth in SEQ ID NO:1.

4. The nucleic acid molecule of claim 1 wherein said polynucleotide has a nucleotide sequence encoding the *tag7* polypeptide having the complete amino acid sequence set forth in SEQ ID NO:2.

5. The nucleic acid molecule of claim 1 wherein said polynucleotide has a nucleotide sequence encoding the mature *tag7* polypeptide having the amino acid sequence at positions 13 to 182 in SEQ ID NO:2.

6. The nucleic acid molecule of claim 1 wherein said polynucleotide has a nucleotide sequence of a *tag7*-encoding polynucleotide which hybridizes under stringent hybridization conditions to a polynucleotide having the nucleotide sequence as set forth in SEQ ID NO:1.

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7. The nucleic acid molecule of claim 1 wherein said polynucleotide has a nucleotide sequence of a *tag7*-encoding polynucleotide which hybridizes under defined hybridization conditions to a polynucleotide having the nucleotide sequence as set forth in SEQ ID NO:1.

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8. An isolated nucleic acid molecule comprising a polynucleotide encoding an epitope-bearing portion of a *tag7* polypeptide, wherein said epitope-bearing portion is selected from the group consisting of: a polypeptide having an amino acid sequence consisting essentially of amino acid residues from about 20 to about 40 in SEQ ID NO:2; a polypeptide having an amino acid sequence consisting essentially of amino acid residues from about 55 to about 75 in SEQ ID NO:2; a polypeptide having an amino acid sequence consisting essentially of amino acid residues from about 90 to about 110 in SEQ ID NO:2; and a polypeptide having an amino acid sequence consisting essentially of amino acid residues from about 145 to about 160 in SEQ ID NO:2.

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9. The isolated nucleic acid molecule of claim 1 or claim 8, wherein said nucleic acid molecule is isolated from a mouse.

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10. The isolated nucleic acid molecule of claim 1 or claim 8, wherein said nucleic acid molecule is isolated from a human.

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11. The isolated nucleic acid molecule of claim 10, wherein said nucleic acid molecule has the sequence as set forth in SEQ ID NO: 3.

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12. An isolated nucleic acid molecule comprising a polynucleotide which hybridizes under stringent hybridization conditions to a polynucleotide having a nucleotide sequence identical to the nucleotide sequence of the isolated nucleic acid molecule of claim 1 or claim 8.

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13. An isolated nucleic acid molecule comprising a polynucleotide which hybridizes under defined hybridization conditions to a polynucleotide having a nucleotide sequence identical to the nucleotide sequence of the isolated nucleic acid molecule of claim 1 or claim 8.

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14. A vector comprising the nucleic acid molecule of claim 1, 8 or 11.

15. The vector of claim 14, wherein said vector is an expression vector.

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16. A host cell comprising the nucleic acid molecule of claim 1, 8 or 11, or the vector of claim 14.

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17. A method for producing an isolated *tag7* polypeptide, comprising culturing the host cell of claim 16 under conditions sufficient to allow the expression of said polypeptide, and isolating said polypeptide.

18. An isolated *tag7* polypeptide produced according to the method of claim 17.

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19. An isolated *tag7* polypeptide having an amino acid sequence at least 65% identical to a reference sequence selected from the group consisting of:

(a) the amino acid sequence encoded by an isolated nucleic acid molecule having a nucleotide sequence as set forth in SEQ ID NO:1;

(b) the complete amino acid sequence of the *tag7* polypeptide as set forth in SEQ ID NO:2;

(c) the amino acid sequence of the mature *tag7* polypeptide having the amino acid sequence as set forth at positions 20 to 182 in SEQ ID NO:2;

(d) the amino acid sequence encoded by a polynucleotide which hybridizes under stringent hybridization conditions to a polynucleotide having a nucleotide sequence as set forth in SEQ ID NO:1; and

(e) the amino acid sequence encoded by a polynucleotide which hybridizes under defined hybridization conditions to a polynucleotide having a nucleotide sequence as set forth in SEQ ID NO:1, or a fragment thereof.

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20. The polypeptide of claim 18, wherein said polypeptide has an amino acid sequence at least 70%, 75%, 80%, 85%, 90%, 95% or 99% identical to said reference sequence.

5 21. The isolated *tag7* polypeptide of any one of claims 18 or 19, wherein said polypeptide is a mouse polypeptide.

10 22. The isolated *tag7* polypeptide of any one of claims 18 or 19, wherein said polypeptide is a human polypeptide.

15 23. The isolated *tag7* polypeptide of claim 22 having the amino acid sequence as set forth in SEQ ID NO: 4.

20 24. A method of producing an isolated *tag7*-specific antibody comprising immunizing an animal with the isolated *tag7* polypeptide of any one of claims 18, 19 or 23, and isolating a *tag7*-specific antibody from said animal.

25 25. An isolated *tag7*-specific antibody obtainable according to the method of claim 24.

26. The isolated antibody of claim 25, wherein said antibody is a polyclonal antibody.

25 27. The isolated antibody of claim 25, wherein said antibody is a monoclonal antibody.

30 28. The isolated antibody of claim 25, wherein said antibody is detectably labeled.

30 29. The isolated antibody of claim 25, wherein said antibody is immobilized on a solid support.

35 30. A method of inhibiting the growth of a mammalian tumor comprising contacting a mammalian cell with a composition comprising an effective amount of one or more isolated *tag7* polypeptides, wherein said isolated

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tag7 polypeptide has an amino acid sequence at least 65% identical to a reference sequence selected from the group consisting of:

(a) the amino acid sequence encoded by an isolated nucleic acid molecule having a nucleotide sequence as set forth in SEQ ID NO:1;

5 (b) the complete amino acid sequence of the *tag7* polypeptide as set forth in SEQ ID NO:2;

(c) the amino acid sequence of the mature *tag7* polypeptide having the amino acid sequence as set forth at positions 20 to 182 in SEQ ID NO:2;

10 (d) an amino acid sequence encoded by a polynucleotide which hybridizes under stringent hybridization conditions to a polynucleotide having the nucleotide sequence set forth in SEQ ID NO:1; and

(e) an amino acid sequence encoded by a polynucleotide which hybridizes under defined hybridization conditions to a polynucleotide having the nucleotide sequence set forth in SEQ ID NO:1,

15 whereby said contacting of said cell with said *tag7* polypeptide inhibits the growth of said tumor.

31. A method of inhibiting the growth of a mammalian tumor comprising introducing into a mammalian cell an effective amount of a nucleic acid molecule comprising a polynucleotide having a nucleotide sequence at least 65% identical to a reference sequence selected from the group consisting of:

(a) the nucleotide sequence set forth in SEQ ID NO:1;

(b) a nucleotide sequence encoding the *tag7* polypeptide having the complete amino acid sequence set forth in SEQ ID NO:2;

25 (c) a nucleotide sequence encoding the mature *tag7* polypeptide having the amino acid sequence at positions 20 to 182 in SEQ ID NO:2;

(d) the nucleotide sequence of a polynucleotide which hybridizes under stringent hybridization conditions to a polynucleotide having a nucleotide sequence as set forth in SEQ ID NO:1; and

30 (e) the nucleotide sequence of a polynucleotide which hybridizes under defined hybridization conditions to a polynucleotide having a nucleotide sequence as set forth in SEQ ID NO:1,

whereby said introduction of said isolated nucleic acid molecule into said cell inhibits the growth of said tumor.

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32. The method of claim 31, wherein said tumor is a human tumor and said nucleic acid molecule comprises a polynucleotide having a nucleotide sequence as set forth in SEQ ID NO: 3.

5 33. A method for treating a cancer in an animal suffering therefrom, comprising administering to said animal a composition comprising an effective amount of one or more isolated *tag7* polypeptides, wherein said isolated *tag7* polypeptide has an amino acid sequence at least 65% identical to a reference sequence selected from the group consisting of:

10 (a) the amino acid sequence encoded by an isolated nucleic acid molecule having a nucleotide sequence as set forth in SEQ ID NO:1;

15 (b) the complete amino acid sequence of the *tag7* polypeptide as set forth in SEQ ID NO:2;

15 (c) the amino acid sequence of the mature *tag7* polypeptide having the amino acid sequence as set forth at positions 20 to 182 in SEQ ID NO:2;

20 (d) an amino acid sequence encoded by a polynucleotide which hybridizes under stringent hybridization conditions to a polynucleotide having the nucleotide sequence set forth in SEQ ID NO:1; and

20 (e) an amino acid sequence encoded by a polynucleotide which hybridizes under defined hybridization conditions to a polynucleotide having the nucleotide sequence set forth in SEQ ID NO:1, whereby said treatment inhibits the progression or growth, or induces the remission, of said cancer.

25 34. A method for treating a cancer in an animal suffering therefrom, comprising introducing into said animal an effective amount of a nucleic acid molecule comprising a polynucleotide having a nucleotide sequence at least 65% identical to a reference sequence selected from the group consisting of:

30 (a) the nucleotide sequence set forth in SEQ ID NO:1;

30 (b) a nucleotide sequence encoding the *tag7* polypeptide having the complete amino acid sequence set forth in SEQ ID NO:2;

35 (c) a nucleotide sequence encoding the mature *tag7* polypeptide having the amino acid sequence at positions 20 to 182 in SEQ ID NO:2;

35 (d) the nucleotide sequence of a polynucleotide which hybridizes under stringent hybridization conditions to a polynucleotide having a nucleotide sequence as set forth in SEQ ID NO:1; and

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(e) the nucleotide sequence of a polynucleotide which hybridizes under defined hybridization conditions to a polynucleotide having a nucleotide sequence as set forth in SEQ ID NO:1, whereby said treatment inhibits the progression or growth, or induces the remission, of said cancer.

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35. The method of claim 30 or 33, wherein said isolated *tag7* polypeptide has an amino acid sequence at least 70%, 75%, 80%, 85%, 90%, 95% or 99% identical to said reference sequence.

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36. The method of claim 30 or 33, wherein said composition comprises an isolated *tag7* polypeptide having the amino acid sequence as set forth in SEQ ID NO: 4.

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37. The method of claim 30, 33 or 36 wherein said composition further comprises a pharmaceutically acceptable carrier or excipient for said isolated *tag7* polypeptide.

38. The method of claim 31 or claim 34, wherein said polynucleotide has a nucleotide sequence at least 70%, 75%, 80%, 85%, 90%, 95% or 99% identical to said reference sequence.

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39. The method of claim 31 or claim 34, wherein said isolated polynucleotide is contained in a vector or a virion.

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40. The method of claim 39, wherein said vector or virion is derived from a retrovirus, an adenovirus or an adeno-associated virus.

41. The method of claim 30 or claim 31, wherein said mammalian cell is a human cell.

42. The method of claim 30 or claim 31, wherein said mammalian cell is a tumor cell.

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43. The method of claim 42, wherein said tumor cell is a carcinoma cell, a sarcoma cell, a melanoma cell or a leukemia cell.

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44. The method of claim 43, wherein said carcinoma cell is selected from the group consisting of a liver carcinoma cell, an ovarian carcinoma cell, a breast carcinoma cell, a cervical carcinoma cell, a lung carcinoma cell, a prostatic carcinoma cell, a gastric carcinoma cell, a bladder carcinoma cell, a testicular carcinoma cell, a colorectal carcinoma cell, a pancreatic carcinoma cell, an oral cavity carcinoma cell, a squamous cell carcinoma cell, a head and neck carcinoma cell and a teratocarcinoma cell.

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45. The method of claim 44, wherein said sarcoma cell is selected from a Kaposi's sarcoma cell, a fibrosarcoma cell and an osteosarcoma cell.

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46. A pharmaceutical composition comprising the isolated *tag7* polypeptide of claim 18, 19 or 23 and a pharmaceutically acceptable carrier or excipient therefor.

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47. A method of treating a cancer in an animal suffering therefrom, comprising administering to said animal an effective amount of the pharmaceutical composition of claim 46.

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48. The method of any one of claims 33, 34 or 47, wherein said animal is a mammal.

49. The method of claim 48, wherein said mammal is a human.

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50. The method of any one of claims 33, 34 or 47, wherein said cancer is a carcinoma, a sarcoma, a melanoma or a leukemia.

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51. The method of claim 50, wherein said carcinoma is selected from the group consisting of a liver carcinoma, an ovarian carcinoma, a breast carcinoma, a cervical carcinoma, a lung carcinoma, a prostatic carcinoma, a gastric carcinoma, a bladder carcinoma, a testicular carcinoma, a colorectal carcinoma, a pancreatic carcinoma, an oral cavity carcinoma, a squamous carcinoma, a head and neck carcinoma and a teratocarcinoma.

52. The method of claim 50, wherein said sarcoma is selected from a Kaposi's sarcoma, a fibrosarcoma and an osteosarcoma.

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